Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of the claims in the application.

Listing of Claims

1. (previously presented) A server for use in a communications network having a plurality of client NEs, said server comprising:

a) an I/O for exchanging control messages with the client NEs;

b) a processing entity for implementing a routing function that provides routing resources to the client NEs which are not equipped with a routing function;

c) said processing entity operative to interact with a database including true topology information about the client NEs during implementation of said routing function.

2. (original) A server as defined in claim 1, wherein said processing entity implements said routing function by running a single instance of routing protocol.

3. (original) A server as defined in claim 2, wherein the routing protocol is a distributed routing protocol.

4. (original) A server as defined in claim 3, wherein said routing protocol is selected in the group consisting of OSPF, IS-IS and PNNI and a routing protocol based on either one of OSPF, IS-IS and PNNI.

5. (original) A server as defined in claim 2, wherein said routing function is operative to perform computation of a path through the communications network for transporting data, where the source node of the path is any one of the client NEs.

6. (original) A server as defined in claim 2, wherein said routing function is operative to advertise the existence of each client NE to a peer routing instance in the communications network.

7. (original) A server as defined in claim 2, wherein said routing function is operative to advertise link resources associated with each client NE to a peer routing instance in the communications network.

8. (original) A server as defined in claim 2, wherein said routing function is operative for receiving advertisements from a peer routing instance in the communications network about existence of NEs, other than the client NEs.

9. (original) A server as defined in claim 2, wherein said routing function is operative for receiving advertisements from a peer routing instance in the communications network about link resources associated with NEs, other than the client NEs.

10. (original) A server as defined in claim 2, wherein said routing function is operative for acquiring information from the client NEs about link resources associated with each client NE.

11. (original) A server as defined in claim 4, wherein the communications network includes a control plane, said server being part of the control plane.

12. (original) A server as defined in claim 10, wherein the communications network includes a bearer plane, said server being excluded from the bearer plane.

13. (original) A server as defined in claim 11, wherein each client NE is selected in the group consisting of a packet switch and a SONET cross-connect.

14. (original) A server as defined in claim 2, wherein said server includes the database.

15. (previously presented) A computer readable storage medium encoded with a program element for execution on server in a communications network having a plurality of client NEs which are not equipped with a routing function, the program element implementing a routing function for providing routing resources to multiple client NEs, said program element operative to interact with a database including true topology information.

16. (original) A computer readable storage medium as defined in claim 15, wherein said program element implements said routing function by running a single instance of a routing protocol.

17. (original) A computer readable storage medium as defined in claim 16, wherein the routing protocol is a distributed routing protocol.

18. (original) A computer readable storage medium as defined in claim 17, wherein said routing protocol is selected in the group consisting of OSPF, IS-IS and PNNI and a routing protocol based on either one of OSPF, IS-IS and PNNI.

19. (original) A computer readable storage medium as defined in claim 16, wherein said single instance of the routing function is operative to perform computation of a path through the communications network for transporting data, where the source node of the path includes at least one of the client NEs.

20. (original) A computer readable storage medium as defined in claim 16, wherein said single instance of the routing function is operative to advertise the existence of each client NE to a peer routing instance in the communications network.

21. (original) A computer readable storage medium as defined in claim 16, wherein said single instance of the routing function is operative to advertise link resources associated with each client NE to a peer routing instance in the communications network.

22. (original) A computer readable storage medium as defined in claim 16, wherein said single instance of the routing function is operative for receiving advertisements from a peer routing instance in the communications network about existence of NEs, other than the client NEs.

23. (original) A computer readable storage medium as defined in claim 16, wherein said single instance of the routing function is operative for receiving advertisements from a peer routing instance in the communications network about link resources associated with NEs, other than the client NEs.

24. (original) A computer readable storage medium as defined in claim 16, wherein said single instance of the routing function is operative for acquiring information from the client NEs about link resources associated with each client NE.

25. (previously presented) A method for providing a routing function in a communications network, the method comprising:

a) providing in the communications network a server capable of exchanging control messages with a plurality of client NEs in the communications network wherein said client NEs are not equipped with a routing function;

b) implementing a routing function on the server providing routing resources to the plurality of client NEs;

c) allowing the routing function to interact with a database holding true topology information about the client NEs.

26. (original) A method as defined in claim 23, including implementing said routing function by running a single instance of a routing protocol.

27. (original) A method as defined in claim 26, wherein the routing protocol is a distributed routing protocol.

28. (original) A method as defined in claim 27, wherein said routing protocol is selected in the group consisting of OSPF, IS-IS and PNNI and a routing protocol based on either one of OSPF, IS-IS and PNNI.

29. (original) A method as defined in claim 26, wherein the implementing of the routing function includes computing a path through the communications network for transporting data, wherein the source node of the path includes at least one of the client NEs.

30. (original) A method as defined in claim 26, wherein the implementing of the routing function includes advertising the existence of each client NE to a peer routing instance in the communications network.

31. (original) A method as defined in claim 26, wherein the implementing of the routing function includes advertising link resources associated with each client NE to a peer routing instance in the communications network.

32. (original) A method as defined in claim 26, wherein the implementing of the routing function includes receiving advertisements from a peer routing instance in the communications network about existence of NEs, other than the client NEs.

33. (original) A method as defined in claim 26, wherein the implementing of the routing function includes receiving advertisements from a peer routing instance in the communications network about link resources associated with NEs, other than the client NEs.

34. (original) A method as defined in claim 26, wherein the implementing of the routing function includes acquiring information from the client NEs about link resources associated with each client NE.

35. (previously presented) A method for upgrading a communications network having a plurality of NEs which are not equipped with a routing function, comprising:

a) providing in the communications network a server;

b) implementing on the server a single instance of a routing function for controlling routing functions for said plurality of NEs such that said plurality of NEs can perform routing functions without upgrading the NEs to include routing functions themselves.

36. (canceled)

37. (previously presented) A method as defined in claim 35, including implementing said routing function by running a single instance of a routing protocol.

38. (original) A method as defined in claim 37, wherein the routing protocol is a distributed routing protocol.

39. (original) A method as defined in claim 38, wherein said routing protocol is selected in the group consisting of OSPF, IS-IS and PNNI and a routing protocol based on either one of OSPF, IS-IS and PNNI.

40. (original) A method as defined in claim 37, wherein the implementing of the routing function includes computing a path through the communications network for transporting data, wherein the path includes at least one of the plurality NEs as a source node for the path.

41. (original) A method as defined in claim 37, wherein the implementing of the routing function includes advertising the existence of each of the plurality of NEs to a peer routing instance in the communications network.

42. (original) A method as defined in claim 37, wherein the implementing of the routing function includes advertising link resources associated with each of the plurality of NEs to a peer routing instance in the communications network.

43. (original) A method as defined in claim 37, wherein the implementing of the routing function includes receiving advertisements from a peer routing instance in the communications network about existence of NEs, other than the plurality of NEs.

44. (original) A method as defined in claim 37, wherein the implementing of the routing function includes receiving advertisements from a peer routing instance in the communications network about link resources associated with NEs, other than the plurality of NEs.

45. (original) A method as defined in claim 37, wherein the implementing of the routing function includes acquiring information from the client NEs about link resources associated with each client NE.

46. (original) A method as defined in claim 35, comprising providing a database including true topology information about the plurality of NEs and allowing the routing function to interact with said database.

47. (original) A method as defined in claim 46, comprising providing the database in the server.

48. (previously presented) A method for providing a control plane to a communications network that does not have a control plane, said method comprising:

a) providing a server in the communications network that can exchange control messages with a plurality of NEs of the communications network, the NEs being part of a bearer plane of the communications network not previously controlled by a control plane;

b) implementing on the server a routing function providing routing resources to the plurality of NEs without requiring the addition of a routing function to the NEs.

49. (original) A method as defined in claim 48, wherein the bearer plane excludes the server.

50. (previously presented) A server for use in a communications network having a plurality of client NEs which are not equipped with a routing function, said server comprising:

a) an I/O for exchanging control messages with the client NEs;

b) a processing entity for implementing a routing function that provides routing resources to the client NEs;

c) said processing entity operative to interact with a database including true topology information about the client NEs during implementation of said routing function;

d) said processing entity implementing said routing function by running a single instance of a routing protocol; and

e) wherein said routing protocol is a distributed routing protocol and is operative to advertise link resources associated with each client NE to a peer routing instance in the communications network.

51. (previously presented) A server as defined in claim 50, wherein said routing protocol is selected in the group consisting of OSPF, IS-IS and PNNI and a routing protocol based on either one of OSPF, IS-IS and PNNI.

52. (previously presented) A server as defined in claim 50, wherein said routing function is operative to perform computation of a path through the communications network for transporting data, where the source node of the path is any one of the client NEs.

53. (previously presented) A server as defined in claim 50, wherein the communications network includes a control plane, said server being part of the control plane.

54. (previously presented) A server as defined in claim 50, wherein the communications network includes a bearer plane, said server being excluded from the bearer plane.